

Forklift Starters

Forklift Starters - A starter motor today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid installed on it. As soon as current from the starting battery is applied to the solenoid, mainly through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion with the starter ring gear that is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. Once the engine starts, the key operated switch is opened and a spring inside the solenoid assembly pulls the pinion gear away from the ring gear. This particular action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by means of an overrunning clutch. This permits the pinion to transmit drive in only a single direction. Drive is transmitted in this manner via the pinion to the flywheel ring gear. The pinion continues to be engaged, like for example in view of the fact that the operator fails to release the key once the engine starts or if the solenoid remains engaged in view of the fact that there is a short. This actually causes the pinion to spin separately of its driveshaft.

This aforementioned action stops the engine from driving the starter. This is actually an important step since this kind of back drive will allow the starter to spin really fast that it would fly apart. Unless adjustments were made, the sprag clutch arrangement will prevent utilizing the starter as a generator if it was utilized in the hybrid scheme mentioned prior. Normally a regular starter motor is meant for intermittent use which would stop it being used as a generator.

Hence, the electrical parts are designed to be able to function for roughly less than 30 seconds so as to avoid overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are meant to save cost and weight. This is truly the reason nearly all owner's handbooks meant for vehicles recommend the operator to stop for at least ten seconds right after each and every ten or fifteen seconds of cranking the engine, if trying to start an engine which does not turn over instantly.

The overrunning-clutch pinion was launched onto the market in the early part of the 1960's. Before the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft which has a starter drive pinion placed on it. As soon as the starter motor begins spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, therefore engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear allows the pinion to surpass the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was much better since the typical Bendix drive utilized in order to disengage from the ring as soon as the engine fired, even though it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and begins turning. Then the starter motor becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for instance it is backdriven by the running engine, and after that the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be prevented before a successful engine start.